

1. An apparatus for predicting when maintenance is required for a scanner, the apparatus comprising:

a tracking module configured to track a quality parameter history;  
a prediction module configured to predict when maintenance is required based on the quality parameter history; and  
a notification module configured to notify a user when maintenance is predicted to be required based on a quality parameter trend.

2. The apparatus of claim 1, wherein the tracking module further comprises a time tracking module configured to record a quality parameter history variable and a quality parameter time variable after a specified period of time.

3. The apparatus of claim 1, wherein the tracking module further comprises a number tracking module configured to record a quality parameter history variable and a quality parameter time variable after a specified number of images have been scanned.

4. The apparatus of claim 1, wherein the tracking module further comprises an adjustment tracking module configured to modify a quality parameter history variable by an amount that a quality parameter change variable is different than a quality parameter threshold and to record a quality parameter time variable when the quality parameter change variable is modified.

5. The apparatus of claim 1, wherein the prediction module is further configured to use a quality parameter history variable and a quality parameter time variable in a quality parameter function to determine a quality parameter trend and extrapolate the trend to determine:

when the quality parameter trend will cross a quality parameter notification limit;

when the quality parameter trend will cross a quality parameter change limit; and

the time difference between when the quality parameter trend crosses the quality parameter notification limit and the quality parameter change limit.

6. The apparatus of claim 5, wherein the quality parameter function comprises a quality parameter straight-line approximation function configured to determine a straight-line approximation of the quality parameter trend.

7. The apparatus of claim 5 wherein the quality parameter function comprises a quality parameter first order curve fitting approximation function configured to determine a curved-line approximation of the quality parameter trend.

8. The apparatus of claim 1, wherein the notification module is further configured to send a notification signal when a quality parameter trend crosses a quality parameter notification limit, the notification signal comprising an estimated time difference between when the quality parameter trend crosses the quality parameter notification limit and when the quality parameter trend crosses a quality parameter change limit.

9. The apparatus of claim 1, wherein the quality parameter is selected from a group consisting of an average brightness, a maximum brightness, a video gradient, and a contrast.

10. A system for predicting maintenance for a scanner, the system comprising:
- a computer network;
  - a scanner connected to the computer network and configured to scan images and convert the scanned image to a digital format each pixel of the scanned image corresponding to an element in a scanned image matrix;
  - a server configured to control the computer network;
  - a computer connected to the computer network, the computer configured to communicate with the scanner;
  - a tracking module configured to track a quality parameter history;
  - a prediction module configured to predict when maintenance is required based on quality parameter changes;
  - the prediction module is further configured to use a quality parameter history variable and a quality parameter time variable in a quality parameter function to determine a quality parameter trend and extrapolate the trend to determine:
    - when the quality parameter trend will cross a quality parameter notification limit;
    - when the trend quality parameter trend will cross a quality parameter change limit; and
    - the time difference between when the quality parameter trend will cross the quality parameter notification limit and the quality parameter change limit;
  - a notification module configured to notify a user when maintenance is predicted to be required based quality parameter changes;
  - and

the notification module is further configured to send a notification signal when a quality parameter trend crosses a quality parameter notification limit, the notification signal comprising an estimated time difference between when the quality parameter trend crosses the quality parameter notification limit and when the quality parameter trend crosses a quality parameter change limit.

11. The apparatus of claim 10, wherein the quality parameter is selected from a group consisting of an average brightness, a maximum brightness, a video gradient, and a contrast.

12. A process for predicting when maintenance is required for a scanner, the process comprising:

tracking a quality parameter history;

predicting when maintenance is required based on the quality parameter history; and

notifying a user when maintenance is predicted to be required based on a quality parameter trend.

13. The process of claim 12, wherein tracking a quality adjustment history further comprises recording a quality parameter history variable and a quality parameter time variable after a specified period of time.

14. The process of claim 12, wherein tracking a quality adjustment history further comprises recording a quality parameter history variable and a quality parameter time variable after a specified number of images have been scanned.

15. The process of claim 12, wherein tracking a quality adjustment history further comprises modifying a quality parameter history variable by an amount that a quality parameter change variable is different than a quality parameter threshold and to record a quality parameter time variable when the quality parameter change variable is modified.

16. The process of claim 12, wherein predicting when maintenance is required further comprises using a quality parameter history variable and a quality parameter time variable in a quality parameter function to determine a quality parameter trend and extrapolate the trend to determine:

when the quality parameter trend will cross an quality parameter notification limit;

when the quality parameter trend will cross a quality parameter change limit; and

the time difference between when the quality parameter trend will cross the quality parameter notification limit and the quality parameter change limit.

17. The process of claim 16, wherein the quality parameter function comprises a quality parameter straight-line approximation function configured to determine a straight-line approximation of the quality parameter trend.

18. The process of claim 16, wherein the quality parameter function comprises a quality parameter first order curve fitting approximation function configured to determine a curved-line approximation of the quality parameter trend.

19. The process of claim 12, wherein notifying a user when maintenance is predicted to be required further comprises sending a notification signal when a quality parameter trend crosses a quality parameter notification limit, the notification signal comprising an estimated time difference between when the quality parameter trend crosses the quality parameter notification limit and when the quality parameter trend crosses a quality parameter change limit.

20. The process of claim 12, wherein the quality parameter is selected from a group consisting of an average brightness, a maximum brightness, a video gradient, and a contrast.

21. A process for predicting maintenance for a scanner, the process comprising:  
tracking a quality parameter history;  
using a quality parameter history variable and a quality parameter time variable in a quality parameter function to determine a quality parameter trend and extrapolate the trend to determine:  
when the quality parameter trend will cross a quality parameter notification limit;  
when the quality parameter trend will cross a quality parameter change limit; and  
the time difference between when the quality parameter trend will cross the quality parameter notification limit and the quality parameter change limit; and  
sending a notification signal when a quality parameter trend crosses a quality parameter notification limit, the notification signal comprising an estimated time difference between when the quality

parameter trend crosses the quality parameter notification limit and when the quality parameter trend crosses a quality parameter change limit.

22. The process of claim 21, wherein quality parameter is selected from the group consisting of average brightness, maximum brightness, video gradient, and contrast.

23. A computer readable storage medium comprising computer readable code configured to carry out a process for predicting when maintenance is required for a scanner, the process comprising:

tracking a quality parameter history;

predicting when maintenance is required based on the quality parameter history; and

notifying a user when maintenance is predicted to be required based on a quality parameter trend.

24. An apparatus for predicting maintenance, the apparatus comprising:

means for tracking a quality parameter history;

means for predicting when maintenance is required based on the quality parameter history; and

means for notifying a user when maintenance is predicted to be required based on a quality parameter trend.